

**Translation**

**PATENT COOPERATION TREATY**

**PCT**

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**  
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>2003-0201 P</b>	<b>FOR FURTHER ACTION</b>	See Form PCT/IPEA/416
International application No. <b>PCT/EP2004/001114</b>	International filing date (day/month/year) <b>06.02.2004</b>	Priority date (day/month/year) <b>06.02.2003</b>
International Patent Classification (IPC) or national classification and IPC <b>G03G 15/08</b>		
Applicant <b>OCE PRINTING SYSTEMS GMBH</b>		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 9 sheets, including this cover sheet.

3. This report is also accompanied by ANNEXES, comprising:

a. ☒ (sent to the applicant and to the International Bureau) a total of 7 sheets, as follows:

☒ sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).

☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.

b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) \_\_\_\_\_, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

<input checked="" type="checkbox"/>	Box No. I	Basis of the report
<input type="checkbox"/>	Box No. II	Priority
<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
<input type="checkbox"/>	Box No. IV	Lack of unity of invention
<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
<input type="checkbox"/>	Box No. VI	Certain documents cited
<input type="checkbox"/>	Box No. VII	Certain defects in the international application
<input checked="" type="checkbox"/>	Box No. VIII	Certain observations on the international application

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/	Authorized officer
Facsimile No.	Telephone No.

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/001114

Box No. I

Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-11 \_\_\_\_\_ as originally filed/furnished
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the claims:
- nos. 5-10, 12-15, 19, 20 \_\_\_\_\_ as originally filed/furnished
- nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19
- nos.\* 1, 2, 3, 4, 11, 16, 17, 18 received by this Authority on 01.03.2005 with letter of 24.02.2005
- nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the drawings:
- sheets 1/3-3/3 \_\_\_\_\_ as originally filed/furnished
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

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**Box No. V** Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

Novelty (N)	Claims	1-20	YES
	Claims		NO
Inventive step (IS)	Claims	1-15	YES
	Claims	16-20	NO
Industrial applicability (IA)	Claims	1-20	YES
	Claims		NO

## 2. Citations and explanations (Rule 70.7)

Reference is made to the following documents:

D1: US2001/0053293

D2: DE9218168U

D3: US4054230

D5: EP0526194

## 0. New set of claims

The examination was based on the new documents.

## 1. Inventive step

**Method claims 1-15**

The solution to the problem proposed in claims 1-15 of the present application involves an inventive step for the following reasons (PCT Article 33(3)):

1.1 Independent claim 1 involves an inventive step because D1 describes a method for controlling the time at which the toner concentration is measured (page 1, paragraphs [14, 69], figure 5), mixing with blades (page 4, paragraph [55], figure 4), the arrangement of the toner sensor (page 1, paragraph [2]) and the projections (page 3,

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paragraphs [29-30, 63]), the issuing of a signal which, when the blade with a projection passes (with the "scraper" as a non-interrupted magnetic strip), has a first impulse-shaped tip with a large amplitude (figure 5, page 5, paragraph [58]), when the further blades (projections) pass, has further impulse-shaped tips of lesser amplitude (figure 5, pages 5-6, paragraphs [63, 69-74, 79]), the measurement of the toner concentration in a measuring window in the sensor signal after the appearance of the first impulse-shaped tip (pages 5-6, paragraph [69]).

1.2 The subject matter of claim 1 differs from the closest prior art (D1 and D2, D5) in that the measurement lies between the tips caused by the blades.

1.3 Therefore, the problem as to how the toner concentration can be reliably measured without influencing the blades is solved in an inventive and novel manner.

The measurement in D1 is carried out precisely in the time slot at which a projection presses toner on the sensor.

1.4 In claim 2, in addition to the toner concentration sensor, a Hall sensor is added. The signal controls the measurement of toner concentration in a window lying in a range between the tips caused by the blades.

The claim is therefore likewise novel and

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inventive.

1.5 The solution given in claims 1 and 2 is neither known from the searched prior art nor is it obvious to a person skilled in the art and is therefore novel and inventive with respect to D1-D5.

1.6 Claims 3-15 are dependent on claims 1 or 2 and therefore likewise meet the PCT novelty and inventive step requirements.

**Device claims 16-20**

Irrespective of the lack of clarity detailed below, the subject matter of claims 16 and 17 does not involve an inventive step (PCT Article 33(3)) and therefore the requirements of PCT Article 33(1) are not met.

1.7 As is shown hereinafter, some of the features of device claims 16, 17 and 18 relate to a method for using the device and not to a definition of the device based on its technical features. Contrary to the requirements of PCT Article 6, the intended restrictions are therefore not clear from the claim.

The following method steps in claims 16, 17 and 18: signal of the sensor, impulse-shaped tips, area between the tips, time interval between trigger signal and tip are not taken into consideration any further as restrictions of the claim, since the impulse-shaped tip of the signal is not a feature of the device, but only comes

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into effect in the device.

1.8 Claim 16

D1 is considered the prior art closest to the subject matter of claim 16. D1 discloses (the references in parentheses relate to said document): a device for controlling the time at which the concentration of toner is measured (page 1, figures [14, 69], figure 5), a mixing device with blade roller and blades (page 4, paragraph [55], figure 4), a toner concentration sensor (page 1, paragraphs [8, 58]) and projections on the blades in the region adjacent to the concentration sensor (page 3, paragraphs [29-30, 63], figure 4).

Attention is drawn to the fact that it is clear to a person skilled in the art that a mixing screw with a spiral is equivalent to and can be exchanged for a blade roller; the spiral-shaped projections on the roller (D1, figure 4) have the same form and function as the blades of the blade roller.

1.9 The subject matter of claim 16 is therefore novel, since it differs from the known control device in that the projections are made of magnetic strips, wherein for each blade, with one exception, the magnetic strip is interrupted.

1.10 However, D5 and D2 show a magnet device with sensor and magnet (D5, figure 4) or magnetic strips (D2, page 3, lines 11-14). Just as in the application on page 4, lines 32-34, the magnetic strips/magnets have the function of cleaning the mixing device and keeping the mixture

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device free of toner deposits - in other words, the same purpose as the projections in D1.

The feature of the magnetic strips is therefore one of several obvious possibilities from which a person skilled in the art would choose according to the circumstances to solve the problem of interest.

The independent claim therefore does not involve an inventive step.

- 1.11 In response to the letter of 24 February 2005, 2a, second paragraph, concerning the position of the sensor, the application merely mentions that the sensor is arranged adjacently to the roller, that is, possibly also below it, especially since the roller can be designed to have magnetic strips to clean the mixing device (page 4, lines 32-34).
- 1.12 The independent claim is novel, but not inventive for the same reasons (as given above). The device wherein a Hall sensor is used in addition to the toner concentration sensor cannot be deemed inventive since the feature of the Hall sensor, known for example from D3 (figure 1, reference 1, figure 2, column 3, lines 10-15) is only one of several obvious possibilities from which a person skilled in the art would choose according to the circumstances, to generate a trigger signal.
- 1.13 Dependent claims 18-20 do not contain any features which, in combination with the features of any of

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the claims to which they refer, meet the PCT novelty and inventive step requirements, since it is a minor structural modification to arrange the magnet and sensor outside the mixing area (D5, column 8, lines 50-57).

## 2. Clarity

Although claims 1 and 2, 16 and 17 were drafted as separate independent claims, they appear in fact to relate to the same subject matter and differ from one another clearly only in different sensors, which are, however, well known to a person skilled in the art, and the sensors are only one of several obvious possibilities from which a person skilled in the art would choose. For this reason, the claims are not concise and do not meet the requirements of PCT Article 6.

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**Box No. VIII**      **Certain observations on the international application**

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made: